



FRAV2002-0020 Sequence Listing.ST25.txt  
SEQUENCE LISTING

<110> CORTI, Olga  
HAMPE, Cornelia  
BRICE, Alexis  
PRADIER, Laurent  
ROONEY, Thomas  
FOURNIER, Alain

<120> METHOD FOR DETERMINING THE ABILITY OF A COMPOUND TO MODIFY THE  
INTERACTION BETWEEN PARKIN AND THE P38 PROTEIN

<130> FRAV2002-0020 US NP

<150> GB 0229934.5

<151> 2002-12-20

<150> US 60/396,929

<151> 2002-07-18

<160> 22

<170> PatentIn version 3.2

<210> 1

<211> 1131

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)..(963)

<400> 1

atg	ccg	atg	tac	cag	gta	aag	ccc	tat	cac	ggg	ggc	ggc	gcg	cct	ctc	48
Met	Pro	Met	Tyr	Gln	Val	Lys	Pro	Tyr	His	Gly	Gly	Gly	Ala	Pro	Leu	
1				5					10					15		

cgt	gtg	gag	ctt	ccc	acc	tgc	atg	tac	cgg	ctc	ccc	aac	gtg	cac	ggc	96
Arg	Val	Glu	Leu	Pro	Thr	Cys	Met	Tyr	Arg	Leu	Pro	Asn	Val	His	Gly	
			20					25					30			

agg	agc	tac	ggc	cca	gcg	ccg	ggc	gct	ggc	cac	gtg	cag	gaa	gag	tct	144
Arg	Ser	Tyr	Gly	Pro	Ala	Pro	Gly	Ala	Gly	His	Val	Gln	Glu	Glu	Ser	
		35					40					45				

aac	ctg	tct	ctg	caa	gct	ctt	gag	tcc	cgc	caa	gat	gat	att	tta	aaa	192
Asn	Leu	Ser	Leu	Gln	Ala	Leu	Glu	Ser	Arg	Gln	Asp	Asp	Ile	Leu	Lys	
	50					55					60					

cgt	ctg	tat	gag	ttg	aaa	gct	gca	gtt	gat	ggc	ctc	tcc	aag	atg	att	240
Arg	Leu	Tyr	Glu	Leu	Lys	Ala	Ala	Val	Asp	Gly	Leu	Ser	Lys	Met	Ile	
65					70					75				80		

caa	aca	cca	gat	gca	gac	ttg	gat	gta	acc	aac	ata	atc	caa	gcg	gat	288
Gln	Thr	Pro	Asp	Ala	Asp	Leu	Asp	Val	Thr	Asn	Ile	Ile	Gln	Ala	Asp	
				85					90					95		

gag	ccc	acg	act	tta	acc	acc	aat	gcg	ctg	gac	ttg	aat	tca	gtg	ctt	336
Glu	Pro	Thr	Thr	Leu	Thr	Thr	Asn	Ala	Leu	Asp	Leu	Asn	Ser	Val	Leu	
			100					105					110			

FRAV2002-0020 Sequence Listing.ST25.txt

ggg aag gat tac ggg gcg ctg aaa gac atc gtg atc aac gca aac ccg Gly Lys Asp Tyr Gly Ala Leu Lys Asp Ile Val Ile Asn Ala Asn Pro 115 120 125	384
gcc tcc cct ccc ctc tcc ctg ctt gtg ctg cac agg ctg ctc tgt gag Ala Ser Pro Pro Leu Ser Leu Leu Val Leu His Arg Leu Leu Cys Glu 130 135 140	432
cac ttc agg gtc ctg tcc acg gtg cac acg cac tcc tcg gtc aag agc His Phe Arg Val Leu Ser Thr Val His Thr His Ser Ser Val Lys Ser 145 150 155 160	480
gtg cct gaa aac ctt ctc aag tgc ttt gga gaa cag aat aaa aaa cag Val Pro Glu Asn Leu Leu Lys Cys Phe Gly Glu Gln Asn Lys Lys Gln 165 170 175	528
ccc cgc caa gac tat cag ctg gga ttc act tta att tgg aag aat gtg Pro Arg Gln Asp Tyr Gln Leu Gly Phe Thr Leu Ile Trp Lys Asn Val 180 185 190	576
ccg aag acg cag atg aaa ttc agc atc cag acg atg tgc ccc atc gaa Pro Lys Thr Gln Met Lys Phe Ser Ile Gln Thr Met Cys Pro Ile Glu 195 200 205	624
ggc gaa ggg aac att gca cgt ttc ttg ttc tct ctg ttt ggc cag aag Gly Glu Gly Asn Ile Ala Arg Phe Leu Phe Ser Leu Phe Gly Gln Lys 210 215 220	672
cat aat gct gtc aac gca acc ctt ata gat agc tgg gta gat att gcg His Asn Ala Val Asn Ala Thr Leu Ile Asp Ser Trp Val Asp Ile Ala 225 230 235 240	720
att ttt cag tta aaa gag gga agc agt aaa gaa aaa gcc gct gtt ttc Ile Phe Gln Leu Lys Glu Gly Ser Ser Lys Glu Lys Ala Ala Val Phe 245 250 255	768
cgc tcc atg aac tct gct ctt ggg aag agc cct tgg ctc gct ggg aat Arg Ser Met Asn Ser Ala Leu Gly Lys Ser Pro Trp Leu Ala Gly Asn 260 265 270	816
gaa ctc acc gta gca gac gtg gtg ctg tgg tct gta ctc cag cag atc Glu Leu Thr Val Ala Asp Val Val Leu Trp Ser Val Leu Gln Gln Ile 275 280 285	864
gga ggc tgc agt gtg aca gtg cca gcc aat gtg cag agg tgg atg agg Gly Gly Cys Ser Val Thr Val Pro Ala Asn Val Gln Arg Trp Met Arg 290 295 300	912
tct tgt gaa aac ctg gct cct ttt aac acg gcc ctc aag ctc ctt aag Ser Cys Glu Asn Leu Ala Pro Phe Asn Thr Ala Leu Lys Leu Leu Lys 305 310 315 320	960
tga attgccgtaa ctgatttttaa agggtttaga ttttaagaat ggtgctcttt	1013
catgcctatt atcagtaagg ggacttgtat tagagtcaga gtctttttat ttaggccagt	1073
tgtcaagtgt caataaaagc atcatgtaat ttataaaaaa aaaaaaaaaa aactcgag	1131

<210> 2  
 <211> 320  
 <212> PRT  
 <213> Homo sapiens

FRAV2002-0020 Sequence Listing.ST25.txt

<400> 2

```

Met Pro Met Tyr Gln Val Lys Pro Tyr His Gly Gly Gly Ala Pro Leu
1      5      10      15

Arg Val Glu Leu Pro Thr Cys Met Tyr Arg Leu Pro Asn Val His Gly
20     25     30

Arg Ser Tyr Gly Pro Ala Pro Gly Ala Gly His Val Gln Glu Glu Ser
35     40     45

Asn Leu Ser Leu Gln Ala Leu Glu Ser Arg Gln Asp Asp Ile Leu Lys
50     55     60

Arg Leu Tyr Glu Leu Lys Ala Ala Val Asp Gly Leu Ser Lys Met Ile
65     70     75     80

Gln Thr Pro Asp Ala Asp Leu Asp Val Thr Asn Ile Ile Gln Ala Asp
85     90     95

Glu Pro Thr Thr Leu Thr Thr Asn Ala Leu Asp Leu Asn Ser Val Leu
100    105    110

Gly Lys Asp Tyr Gly Ala Leu Lys Asp Ile Val Ile Asn Ala Asn Pro
115    120    125

Ala Ser Pro Pro Leu Ser Leu Leu Val Leu His Arg Leu Leu Cys Glu
130    135    140

His Phe Arg Val Leu Ser Thr Val His Thr His Ser Ser Val Lys Ser
145    150    155    160

Val Pro Glu Asn Leu Leu Lys Cys Phe Gly Glu Gln Asn Lys Lys Gln
165    170    175

Pro Arg Gln Asp Tyr Gln Leu Gly Phe Thr Leu Ile Trp Lys Asn Val
180    185    190

Pro Lys Thr Gln Met Lys Phe Ser Ile Gln Thr Met Cys Pro Ile Glu
195    200    205

Gly Glu Gly Asn Ile Ala Arg Phe Leu Phe Ser Leu Phe Gly Gln Lys
210    215    220

His Asn Ala Val Asn Ala Thr Leu Ile Asp Ser Trp Val Asp Ile Ala
225    230    235    240

```

FRAV2002-0020 Sequence Listing.ST25.txt

Ile Phe Gln Leu Lys Glu Gly Ser Ser Lys Glu Lys Ala Ala Val Phe  
245 250 255

Arg Ser Met Asn Ser Ala Leu Gly Lys Ser Pro Trp Leu Ala Gly Asn  
260 265 270

Glu Leu Thr Val Ala Asp Val Val Leu Trp Ser Val Leu Gln Gln Ile  
275 280 285

Gly Gly Cys Ser Val Thr Val Pro Ala Asn Val Gln Arg Trp Met Arg  
290 295 300

Ser Cys Glu Asn Leu Ala Pro Phe Asn Thr Ala Leu Lys Leu Leu Lys  
305 310 315 320

<210> 3  
<211> 320  
<212> PRT  
<213> Homo sapiens

<400> 3

Met Pro Met Tyr Gln Val Lys Pro Tyr His Gly Gly Gly Ala Pro Leu  
1 5 10 15

Arg Val Glu Leu Pro Thr Cys Met Tyr Arg Leu Pro Asn Val His Gly  
20 25 30

Arg Ser Tyr Gly Pro Ala Pro Gly Ala Gly His Val Gln Glu Glu Ser  
35 40 45

Asn Leu Ser Leu Gln Ala Leu Glu Ser Arg Gln Asp Asp Ile Leu Lys  
50 55 60

Arg Leu Tyr Glu Leu Lys Ala Ala Val Asp Gly Leu Ser Lys Met Ile  
65 70 75 80

Gln Thr Pro Asp Ala Asp Leu Asp Val Thr Asn Ile Ile Gln Ala Asp  
85 90 95

Glu Pro Thr Thr Leu Thr Thr Asn Ala Leu Asp Leu Asn Ser Val Leu  
100 105 110

Gly Lys Asp Tyr Gly Ala Leu Lys Asp Ile Val Ile Asn Ala Asn Pro  
115 120 125

Ala Ser Pro Pro Leu Ser Leu Leu Val Leu His Arg Leu Leu Cys Glu  
130 135 140

FRAV2002-0020 Sequence Listing.ST25.txt

His Phe Arg Val Leu Ser Thr Val His Thr His Ser Ser Val Lys Ser  
145 150 155 160

Val Pro Glu Asn Leu Leu Lys Cys Phe Gly Glu Gln Asn Lys Lys Gln  
165 170 175

Pro Arg Gln Asp Tyr Gln Leu Gly Phe Thr Leu Ile Trp Lys Asn Val  
180 185 190

Pro Lys Thr Gln Met Lys Phe Ser Ile Gln Thr Met Cys Pro Ile Glu  
195 200 205

Gly Glu Gly Asn Ile Ala Arg Phe Leu Phe Ser Leu Phe Gly Gln Lys  
210 215 220

His Asn Ala Val Asn Ala Thr Leu Ile Asp Ser Trp Val Asp Ile Ala  
225 230 235 240

Ile Phe Gln Leu Lys Glu Gly Ser Ser Lys Glu Lys Ala Ala Val Phe  
245 250 255

Arg Ser Met Asn Ser Ala Leu Gly Lys Ser Pro Trp Leu Ala Gly Asn  
260 265 270

Glu Leu Thr Val Ala Asp Val Val Leu Trp Ser Val Leu Gln Gln Ile  
275 280 285

Gly Gly Cys Ser Val Thr Val Pro Ala Asn Val Gln Arg Trp Met Arg  
290 295 300

Ser Cys Glu Asn Leu Ala Pro Phe Asn Thr Ala Leu Lys Leu Leu Lys  
305 310 315 320

<210> 4  
<211> 1233  
<212> DNA  
<213> Mus musculus

<220>  
<221> CDS  
<222> (78)..(1040)

<400> 4  
ggctgctgtc tgaggtggcc ttgggtggct tctgagcgtt cctgtccctc gcccgtacc 60

ttccttggtggt tcccacc atg ccg atg tac cag gta aag ccc tat cat gga 110  
Met Pro Met Tyr Gln Val Lys Pro Tyr His Gly  
1 5 10

ggc agc gca cct ctg cgt gta gag ctt cca acc tgc atg tac cgg ctc 158  
Gly Ser Ala Pro Leu Arg Val Glu Leu Pro Thr Cys Met Tyr Arg Leu  
Page 5

## FRAV2002-0020 Sequence Listing.ST25.txt

15	20	25	
ccc aac gtg cac agc aag acc acc agc ccc gcc acc gac gcg ggc cac Pro Asn Val His Ser Lys Thr Thr Ser Pro Ala Thr Asp Ala Gly His	30	35	40
206			
gtg cag gaa aca tcc gag cct tct ttg caa gcc ctt gaa tct cgc caa Val Gln Glu Thr Ser Glu Pro Ser Leu Gln Ala Leu Glu Ser Arg Gln	45	50	55
254			
gat gat att tta aaa cgc ttg tat gag ttg aag gca gca gtc gat ggc Asp Asp Ile Leu Lys Arg Leu Tyr Glu Leu Lys Ala Ala Val Asp Gly	60	65	70
302			
ctt tca aag atg att cac acc cca gat gca gac ttg gac gta acc aac Leu Ser Lys Met Ile His Thr Pro Asp Ala Asp Leu Asp Val Thr Asn	80	85	90
350			
atc ctg caa gct gat gag ccc aca act tta gcc aca aac aca ttg gac Ile Leu Gln Ala Asp Glu Pro Thr Thr Leu Ala Thr Asn Thr Leu Asp	95	100	105
398			
ttg aat tcc gtg ctt gga aag gac tat ggg gcg ctg aaa gac att gtg Leu Asn Ser Val Leu Gly Lys Asp Tyr Gly Ala Leu Lys Asp Ile Val	110	115	120
446			
atc aac gca aac cca gcc tcc cca cca ctg tcc ctg ctt gtg ctg cac Ile Asn Ala Asn Pro Ala Ser Pro Pro Leu Ser Leu Leu Val Leu His	125	130	135
494			
agg ctg ctc tgt gaa cgc tac agg gtc ctg tcc act gtg cac aca cat Arg Leu Leu Cys Glu Arg Tyr Arg Val Leu Ser Thr Val His Thr His	140	145	150
542			
tcg tct gtc aag aat gtg ccc gag aat ctt gtc aag tgc ttc ggg gag Ser Ser Val Lys Asn Val Pro Glu Asn Leu Val Lys Cys Phe Gly Glu	160	165	170
590			
cag gct agg aag cag tcc cgc cac gag tat cag ctg ggc ttc act ctg Gln Ala Arg Lys Gln Ser Arg His Glu Tyr Gln Leu Gly Phe Thr Leu	175	180	185
638			
att tgg aag aat gtg ccc aag aca cag atg aag ttc agt gta caa acc Ile Trp Lys Asn Val Pro Lys Thr Gln Met Lys Phe Ser Val Gln Thr	190	195	200
686			
atg tgc ccc att gaa gga gaa ggg aac atc gca cgt ttc ctg ttc tct Met Cys Pro Ile Glu Gly Glu Gly Asn Ile Ala Arg Phe Leu Phe Ser	205	210	215
734			
ctg ttt ggc cag aag cat aat gct gtc acc ctg acc ctg atc gat agc Leu Phe Gly Gln Lys His Asn Ala Val Thr Leu Thr Leu Ile Asp Ser	220	225	230
782			
tgg gtg gat atc gcc atg ttt cag ctt cga gaa ggc agc agt aaa gaa Trp Val Asp Ile Ala Met Phe Gln Leu Arg Glu Gly Ser Ser Lys Glu	240	245	250
830			
aaa gcg gcc gtg ttc cgc tct atg aac tcc gct ttg ggg agg agc ccg Lys Ala Ala Val Phe Arg Ser Met Asn Ser Ala Leu Gly Arg Ser Pro	255	260	265
878			
tgg ctg gtt gga aat gag ctc act gtg gca gat gtg gtg ctg tgg tct			
926			

FRAV2002-0020 Sequence Listing.ST25.txt

Trp	Leu	Val	Gly	Asn	Glu	Leu	Thr	Val	Ala	Asp	Val	Val	Leu	Trp	Ser		
		270					275					280					
gtg	ctc	cag	cag	act	ggg	ggc	agc	agt	ggg	gca	gca	ccc	acc	aat	gtg	974	
Val	Leu	Gln	Gln	Thr	Gly	Gly	Ser	Ser	Gly	Ala	Ala	Pro	Thr	Asn	Val		
		285				290					295						
cag	cgg	tgg	ctt	aag	tcc	tgt	gaa	aac	ctg	gcc	ccc	ttc	agc	act	gcc	1022	
Gln	Arg	Trp	Leu	Lys	Ser	Cys	Glu	Asn	Leu	Ala	Pro	Phe	Ser	Thr	Ala		
300					305					310					315		
ctt	cag	ctc	ctt	aag	tga	attcgagcag	ctt	gtc	ttgc	agggttcaac						1070	
Leu	Gln	Leu	Leu	Lys													
				320													
agaagaatgg	tacggcttcc	agtctgttgt	cagaaaggga	ctt	gtccaat	aaagtaccat										1130	
atcatcctaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa										1190	
aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaa											1233	

<210> 5  
 <211> 320  
 <212> PRT  
 <213> Mus musculus

<400> 5

Met	Pro	Met	Tyr	Gln	Val	Lys	Pro	Tyr	His	Gly	Gly	Ser	Ala	Pro	Leu
1				5					10					15	
Arg	Val	Glu	Leu	Pro	Thr	Cys	Met	Tyr	Arg	Leu	Pro	Asn	Val	His	Ser
		20						25					30		
Lys	Thr	Thr	Ser	Pro	Ala	Thr	Asp	Ala	Gly	His	Val	Gln	Glu	Thr	Ser
		35					40					45			
Glu	Pro	Ser	Leu	Gln	Ala	Leu	Glu	Ser	Arg	Gln	Asp	Asp	Ile	Leu	Lys
	50					55					60				
Arg	Leu	Tyr	Glu	Leu	Lys	Ala	Ala	Val	Asp	Gly	Leu	Ser	Lys	Met	Ile
65				70						75				80	
His	Thr	Pro	Asp	Ala	Asp	Leu	Asp	Val	Thr	Asn	Ile	Leu	Gln	Ala	Asp
			85						90					95	
Glu	Pro	Thr	Thr	Leu	Ala	Thr	Asn	Thr	Leu	Asp	Leu	Asn	Ser	Val	Leu
			100					105					110		
Gly	Lys	Asp	Tyr	Gly	Ala	Leu	Lys	Asp	Ile	Val	Ile	Asn	Ala	Asn	Pro
		115					120					125			
Ala	Ser	Pro	Pro	Leu	Ser	Leu	Leu	Val	Leu	His	Arg	Leu	Leu	Cys	Glu
	130					135					140				

FRAV2002-0020 Sequence Listing.ST25.txt

Arg Tyr Arg Val Leu Ser Thr Val His Thr His Ser Ser Val Lys Asn  
145 150 155 160

Val Pro Glu Asn Leu Val Lys Cys Phe Gly Glu Gln Ala Arg Lys Gln  
165 170 175

Ser Arg His Glu Tyr Gln Leu Gly Phe Thr Leu Ile Trp Lys Asn Val  
180 185 190

Pro Lys Thr Gln Met Lys Phe Ser Val Gln Thr Met Cys Pro Ile Glu  
195 200 205

Gly Glu Gly Asn Ile Ala Arg Phe Leu Phe Ser Leu Phe Gly Gln Lys  
210 215 220

His Asn Ala Val Thr Leu Thr Leu Ile Asp Ser Trp Val Asp Ile Ala  
225 230 235 240

Met Phe Gln Leu Arg Glu Gly Ser Ser Lys Glu Lys Ala Ala Val Phe  
245 250 255

Arg Ser Met Asn Ser Ala Leu Gly Arg Ser Pro Trp Leu Val Gly Asn  
260 265 270

Glu Leu Thr Val Ala Asp Val Val Leu Trp Ser Val Leu Gln Gln Thr  
275 280 285

Gly Gly Ser Ser Gly Ala Ala Pro Thr Asn Val Gln Arg Trp Leu Lys  
290 295 300

Ser Cys Glu Asn Leu Ala Pro Phe Ser Thr Ala Leu Gln Leu Leu Lys  
305 310 315 320

<210> 6  
<211> 320  
<212> PRT  
<213> Mus musculus

<400> 6

Met Pro Met Tyr Gln Val Lys Pro Tyr His Gly Gly Ser Ala Pro Leu  
1 5 10 15

Arg Val Glu Leu Pro Thr Cys Met Tyr Arg Leu Pro Asn Val His Ser  
20 25 30

Lys Thr Thr Ser Pro Ala Thr Asp Ala Gly His Val Gln Glu Thr Ser  
35 40 45



FRAV2002-0020 Sequence Listing.ST25.txt

Glu Pro Ser Leu Gln Ala Leu Glu Ser Arg Gln Asp Asp Ile Leu Lys  
 50 55 60  
 Arg Leu Tyr Glu Leu Lys Ala Ala Val Asp Gly Leu Ser Lys Met Ile  
 65 70 75 80  
 His Thr Pro Asp Ala Asp Leu Asp Val Thr Asn Ile Leu Gln Ala Asp  
 85 90 95  
 Glu Pro Thr Thr Leu Ala Thr Asn Thr Leu Asp Leu Asn Ser Val Leu  
 100 105 110  
 Gly Lys Asp Tyr Gly Ala Leu Lys Asp Ile Val Ile Asn Ala Asn Pro  
 115 120 125  
 Ala Ser Pro Pro Leu Ser Leu Leu Val Leu His Arg Leu Leu Cys Glu  
 130 135 140  
 Arg Tyr Arg Val Leu Ser Thr Val His Thr His Ser Ser Val Lys Asn  
 145 150 155 160  
 Val Pro Glu Asn Leu Val Lys Cys Phe Gly Glu Gln Ala Arg Lys Gln  
 165 170 175  
 Ser Arg His Glu Tyr Gln Leu Gly Phe Thr Leu Ile Trp Lys Asn Val  
 180 185 190  
 Pro Lys Thr Gln Met Lys Phe Ser Val Gln Thr Met Cys Pro Ile Glu  
 195 200 205  
 Gly Glu Gly Asn Ile Ala Arg Phe Leu Phe Ser Leu Phe Gly Gln Lys  
 210 215 220  
 His Asn Ala Val Thr Leu Thr Leu Ile Asp Ser Trp Val Asp Ile Ala  
 225 230 235 240  
 Met Phe Gln Leu Arg Glu Gly Ser Ser Lys Glu Lys Ala Ala Val Phe  
 245 250 255  
 Arg Ser Met Asn Ser Ala Leu Gly Arg Ser Pro Trp Leu Val Gly Asn  
 260 265 270  
 Glu Leu Thr Val Ala Asp Val Val Leu Trp Ser Val Leu Gln Gln Thr  
 275 280 285  
 Gly Gly Ser Ser Gly Ala Ala Pro Thr Asn Val Gln Arg Trp Leu Lys

FRAV2002-0020 Sequence Listing.ST25.txt

290

295

300

Ser Cys Glu Asn Leu Ala Pro Phe Ser Thr Ala Leu Gln Leu Leu Lys  
305 310 315 320

<210> 7  
<211> 2960  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (102)..(1499)

<400> 7  
tccgggagga ttaccagga gaccgctggt gggaggcgcg gctggcgccg ctgcgcgcat 60  
gggcctgttc ctggcccgcg gccgccacct acccagtgac c atg ata gtg ttt gtc 116  
Met Ile Val Phe Val  
1 5  
agg ttc aac tcc agc cat ggt ttc cca gtg gag gtc gat tct gac acc 164  
Arg Phe Asn Ser Ser His Gly Phe Pro Val Glu Val Asp Ser Asp Thr  
10 15 20  
agc atc ttc cag ctc aag gag gtg gtt gct aag cga cag ggg gtt ccg 212  
Ser Ile Phe Gln Leu Lys Glu Val Val Ala Lys Arg Gln Gly Val Pro  
25 30 35  
gct gac cag ttg cgt gtg att ttc gca ggg aag gag ctg agg aat gac 260  
Ala Asp Gln Leu Arg Val Ile Phe Ala Gly Lys Glu Leu Arg Asn Asp  
40 45 50  
tgg act gtg cag aat tgt gac ctg gat cag cag agc att gtt cac att 308  
Trp Thr Val Gln Asn Cys Asp Leu Asp Gln Gln Ser Ile Val His Ile  
55 60 65  
gtg cag aga ccg tgg aga aaa ggt caa gaa atg aat gca act gga ggc 356  
Val Gln Arg Pro Trp Arg Lys Gly Gln Glu Met Asn Ala Thr Gly Gly  
70 75 80 85  
gac gac ccc aga aac gcg gcg gga ggc tgt gag cgg gag ccc cag agc 404  
Asp Asp Pro Arg Asn Ala Ala Gly Gly Cys Glu Arg Glu Pro Gln Ser  
90 95 100  
ttg act cgg gtg gac ctc agc agc tca gtc ctc cca gga gac tct gtg 452  
Leu Thr Arg Val Asp Leu Ser Ser Ser Val Leu Pro Gly Asp Ser Val  
105 110 115  
ggg ctg gct gtc att ctg cac act gac agc agg aag gac tca cca cca 500  
Gly Leu Ala Val Ile Leu His Thr Asp Ser Arg Lys Asp Ser Pro Pro  
120 125 130  
gct gga agt cca gca ggt aga tca atc tac aac agc ttt tat gtg tat 548  
Ala Gly Ser Pro Ala Gly Arg Ser Ile Tyr Asn Ser Phe Tyr Val Tyr  
135 140 145  
tgc aaa ggc ccc tgt caa aga gtg cag ccg gga aaa ctc agg gta cag 596  
Cys Lys Gly Pro Cys Gln Arg Val Gln Pro Gly Lys Leu Arg Val Gln  
150 155 160 165

FRAV2002-0020 Sequence Listing.ST25.txt

tgc agc acc tgc agg cag gca acg ctc acc ttg acc cag ggt cca tct Cys Ser Thr Cys Arg Gln Ala Thr Leu Thr Leu Thr Gln Gly Pro Ser 170 175 180	644
tgc tgg gat gat gtt tta att cca aac cgg atg agt ggt gaa tgc caa Cys Trp Asp Asp Val Leu Ile Pro Asn Arg Met Ser Gly Glu Cys Gln 185 190 195	692
tcc cca cac tgc cct ggg act agt gca gaa ttt ttc ttt aaa tgt gga Ser Pro His Cys Pro Gly Thr Ser Ala Glu Phe Phe Phe Lys Cys Gly 200 205 210	740
gca cac ccc acc tct gac aag gaa aca cca gta gct ttg cac ctg atc Ala His Pro Thr Ser Asp Lys Glu Thr Pro Val Ala Leu His Leu Ile 215 220 225	788
gca aca aat agt cgg aac atc act tgc att acg tgc aca gac gtc agg Ala Thr Asn Ser Arg Asn Ile Thr Cys Ile Thr Cys Thr Asp Val Arg 230 235 240 245	836
agc ccc gtc ctg gtt ttc cag tgc aac tcc cgc cac gtg att tgc tta Ser Pro Val Leu Val Phe Gln Cys Asn Ser Arg His Val Ile Cys Leu 250 255 260	884
gac tgt ttc cac tta tac tgt gtg aca aga ctc aat gat cgg cag ttt Asp Cys Phe His Leu Tyr Cys Val Thr Arg Leu Asn Asp Arg Gln Phe 265 270 275	932
gtt cac gac cct caa ctt ggc tac tcc ctg cct tgt gtg gct ggc tgt Val His Asp Pro Gln Leu Gly Tyr Ser Leu Pro Cys Val Ala Gly Cys 280 285 290	980
ccc aac tcc ttg att aaa gag ctc cat cac ttc agg att ctg gga gaa Pro Asn Ser Leu Ile Lys Glu Leu His His Phe Arg Ile Leu Gly Glu 295 300 305	1028
gag cag tac aac cgg tac cag cag tat ggt gca gag gag tgt gtc ctg Glu Gln Tyr Asn Arg Tyr Gln Gln Tyr Gly Ala Glu Glu Cys Val Leu 310 315 320 325	1076
cag atg ggg ggc gtg tta tgc ccc cgc cct ggc tgt gga gcg ggg ctg Gln Met Gly Gly Val Leu Cys Pro Arg Gly Cys Gly Ala Gly Leu 330 335 340	1124
ctg ccg gag cct gac cag agg aaa gtc acc tgc gaa ggg ggc aat ggc Leu Pro Glu Pro Asp Gln Arg Lys Val Thr Cys Glu Gly Gly Asn Gly 345 350 355	1172
ctg ggc tgt ggg ttt gcc ttc tgc cgg gaa tgt aaa gaa gcg tac cat Leu Gly Cys Gly Phe Ala Phe Cys Arg Glu Cys Lys Glu Ala Tyr His 360 365 370	1220
gaa ggg gag tgc agt gcc gta ttt gaa gcc tca gga aca act act cag Glu Gly Glu Cys Ser Ala Val Phe Glu Ala Ser Gly Thr Thr Thr Gln 375 380 385	1268
gcc tac aga gtc gat gaa aga gcc gcc gag cag gct cgt tgg gaa gca Ala Tyr Arg Val Asp Glu Arg Ala Ala Glu Gln Ala Arg Trp Glu Ala 390 395 400 405	1316
gcc tcc aaa gaa acc atc aag aaa acc acc aag ccc tgt ccc cgc tgc Ala Ser Lys Glu Thr Ile Lys Lys Thr Thr Lys Pro Cys Pro Arg Cys 410 415 420 425	1364

## FRAV2002-0020 Sequence Listing.ST25.txt

410	415	420	
cat gta cca gtg gaa aaa aat gga ggc tgc atg cac atg aag tgt ccg His Val Pro Val Glu Lys Asn Gly Gly Cys Met His Met Lys Cys Pro 425 430 435			1412
cag ccc cag tgc agg ctc gag tgg tgc tgg aac tgt ggc tgc gag tgg Gln Pro Gln Cys Arg Leu Glu Trp Cys Trp Asn Cys Gly Cys Glu Trp 440 445 450			1460
aac cgc gtc tgc atg ggg gac cac tgg ttc gac gtg tag ccagggcggc Asn Arg Val Cys Met Gly Asp His Trp Phe Asp Val 455 460 465			1509
cgggcgcccc atcgccacat cctgggggag catacccagt gtctaccttc attttctaatt			1569
tctctttttca aacacacaca cacacgcgcg cgcgcgcaaca cacactcttc aagttttttt			1629
caaagtccaa ctacagccaa attgcagaag aaactcctgg atccctttca ctatgtccat			1689
gaaaaacagc agagtaaaat tacagaagaa gctcctgaat ccctttcagt ttgtccacac			1749
aagacagcag agccatctgc gacaccacca acaggcggtc tcagcctccg gatgacacaa			1809
ataccagagc acagattcaa gtgcaatcca tgtatctgta tgggtcattc tcacctgaat			1869
tcgagacagg cagaatcagt agctggagag agagtcttca catttaatat cctgcctttt			1929
accttcagta aacaccatga agatgccatt gacaagggtgt ttctctgtaa aatgaactgc			1989
agtgggttct ccaaactaga ttcatggctt taacagtaat gttcttattt aaattttcag			2049
aaagcatcta ttcccaaaga accccaggca atagtcaaaa acatttgttt atccttaaga			2109
attccatcta tataaatcgc attaatcgaa ataccaacta tgtgtaaatc aacttgtcac			2169
aaagtgagaa attatgaaag ttaatttgaa tggtgaatgt ttgaattaca gggaagaaat			2229
caagttaatg tactttcatt ccctttcatg atttgcaact ttagaaagaa attgtttttc			2289
tgaaagtatc accaaaaaat ctatagtttg attctgagta ttcattttgc aacttggaga			2349
ttttgctaata acatttggct cactgtaaa tttaatagat aaagtgcta taaaggaaac			2409
acgttttagaa atgatttcaa aatgatattc aatcttaaca aaagtgaaca ttattaaatc			2469
agaatcttta aagaggagcc tttccagaac taccaaaatg aagacacgcc cgactctctc			2529
catcagaagg gtttataccc ctttggcaca ccctctctgt ccaatctgca agtcccagg			2589
agctctgcat accaggggtt ccccaggaga gaccttctct taggacagta aactcactag			2649
aatattcctt atgttgacat ggattggatt tcagttcaat caaactttca gctttttttt			2709
cagccattca caacacaatc aaaagattaa caacactgca tgcggcaaac cgcattgctct			2769
taccacact acgcagaaga gaaagtacaa ccactatctt ttgttctacc tgtattgtct			2829
gacttctcag gaagatcgtg aacataactg agggcatgag tctcactagc acatggaggc			2889
ccttttggat ttagagactg taaattatta aatcggcaac agggcttctc tttttagatg			2949
tagcactgaa a			2960

FRAV2002-0020 Sequence Listing.ST25.txt

<210> 8  
 <211> 465  
 <212> PRT  
 <213> Homo sapiens

<400> 8

Met Ile Val Phe Val Arg Phe Asn Ser Ser His Gly Phe Pro Val Glu  
 1 5 10 15

Val Asp Ser Asp Thr Ser Ile Phe Gln Leu Lys Glu Val Val Ala Lys  
 20 25 30

Arg Gln Gly Val Pro Ala Asp Gln Leu Arg Val Ile Phe Ala Gly Lys  
 35 40 45

Glu Leu Arg Asn Asp Trp Thr Val Gln Asn Cys Asp Leu Asp Gln Gln  
 50 55 60

Ser Ile Val His Ile Val Gln Arg Pro Trp Arg Lys Gly Gln Glu Met  
 65 70 75 80

Asn Ala Thr Gly Gly Asp Asp Pro Arg Asn Ala Ala Gly Gly Cys Glu  
 85 90 95

Arg Glu Pro Gln Ser Leu Thr Arg Val Asp Leu Ser Ser Ser Val Leu  
 100 105 110

Pro Gly Asp Ser Val Gly Leu Ala Val Ile Leu His Thr Asp Ser Arg  
 115 120 125

Lys Asp Ser Pro Pro Ala Gly Ser Pro Ala Gly Arg Ser Ile Tyr Asn  
 130 135 140

Ser Phe Tyr Val Tyr Cys Lys Gly Pro Cys Gln Arg Val Gln Pro Gly  
 145 150 155 160

Lys Leu Arg Val Gln Cys Ser Thr Cys Arg Gln Ala Thr Leu Thr Leu  
 165 170 175

Thr Gln Gly Pro Ser Cys Trp Asp Asp Val Leu Ile Pro Asn Arg Met  
 180 185 190

Ser Gly Glu Cys Gln Ser Pro His Cys Pro Gly Thr Ser Ala Glu Phe  
 195 200 205

Phe Phe Lys Cys Gly Ala His Pro Thr Ser Asp Lys Glu Thr Pro Val  
 210 215 220

FRAV2002-0020 Sequence Listing.ST25.txt

Ala Leu His Leu Ile Ala Thr Asn Ser Arg Asn Ile Thr Cys Ile Thr  
225 230 235 240

Cys Thr Asp Val Arg Ser Pro Val Leu Val Phe Gln Cys Asn Ser Arg  
245 250 255

His Val Ile Cys Leu Asp Cys Phe His Leu Tyr Cys Val Thr Arg Leu  
260 265 270

Asn Asp Arg Gln Phe Val His Asp Pro Gln Leu Gly Tyr Ser Leu Pro  
275 280 285

Cys Val Ala Gly Cys Pro Asn Ser Leu Ile Lys Glu Leu His His Phe  
290 295 300

Arg Ile Leu Gly Glu Glu Gln Tyr Asn Arg Tyr Gln Gln Tyr Gly Ala  
305 310 315 320

Glu Glu Cys Val Leu Gln Met Gly Gly Val Leu Cys Pro Arg Pro Gly  
325 330 335

Cys Gly Ala Gly Leu Leu Pro Glu Pro Asp Gln Arg Lys Val Thr Cys  
340 345 350

Glu Gly Gly Asn Gly Leu Gly Cys Gly Phe Ala Phe Cys Arg Glu Cys  
355 360 365

Lys Glu Ala Tyr His Glu Gly Glu Cys Ser Ala Val Phe Glu Ala Ser  
370 375 380

Gly Thr Thr Thr Gln Ala Tyr Arg Val Asp Glu Arg Ala Ala Glu Gln  
385 390 395 400

Ala Arg Trp Glu Ala Ala Ser Lys Glu Thr Ile Lys Lys Thr Thr Lys  
405 410 415

Pro Cys Pro Arg Cys His Val Pro Val Glu Lys Asn Gly Gly Cys Met  
420 425 430

His Met Lys Cys Pro Gln Pro Gln Cys Arg Leu Glu Trp Cys Trp Asn  
435 440 445

Cys Gly Cys Glu Trp Asn Arg Val Cys Met Gly Asp His Trp Phe Asp  
450 455 460

Val

465

<210> 9  
 <211> 465  
 <212> PRT  
 <213> Homo sapiens

&lt;400&gt; 9

Met Ile Val Phe Val Arg Phe Asn Ser Ser His Gly Phe Pro Val Glu  
 1 5 10 15

Val Asp Ser Asp Thr Ser Ile Phe Gln Leu Lys Glu Val Val Ala Lys  
 20 25 30

Arg Gln Gly Val Pro Ala Asp Gln Leu Arg Val Ile Phe Ala Gly Lys  
 35 40 45

Glu Leu Arg Asn Asp Trp Thr Val Gln Asn Cys Asp Leu Asp Gln Gln  
 50 55 60

Ser Ile Val His Ile Val Gln Arg Pro Trp Arg Lys Gly Gln Glu Met  
 65 70 75 80

Asn Ala Thr Gly Gly Asp Asp Pro Arg Asn Ala Ala Gly Gly Cys Glu  
 85 90 95

Arg Glu Pro Gln Ser Leu Thr Arg Val Asp Leu Ser Ser Ser Val Leu  
 100 105 110

Pro Gly Asp Ser Val Gly Leu Ala Val Ile Leu His Thr Asp Ser Arg  
 115 120 125

Lys Asp Ser Pro Pro Ala Gly Ser Pro Ala Gly Arg Ser Ile Tyr Asn  
 130 135 140

Ser Phe Tyr Val Tyr Cys Lys Gly Pro Cys Gln Arg Val Gln Pro Gly  
 145 150 155 160

Lys Leu Arg Val Gln Cys Ser Thr Cys Arg Gln Ala Thr Leu Thr Leu  
 165 170 175

Thr Gln Gly Pro Ser Cys Trp Asp Asp Val Leu Ile Pro Asn Arg Met  
 180 185 190

Ser Gly Glu Cys Gln Ser Pro His Cys Pro Gly Thr Ser Ala Glu Phe  
 195 200 205

Phe Phe Lys Cys Gly Ala His Pro Thr Ser Asp Lys Glu Thr Pro Val  
 Page 15

FRAV2002-0020 Sequence Listing.ST25.txt

210

215

220

Ala Leu His Leu Ile Ala Thr Asn Ser Arg Asn Ile Thr Cys Ile Thr  
 225 230 235 240

Cys Thr Asp Val Arg Ser Pro Val Leu Val Phe Gln Cys Asn Ser Arg  
 245 250 255

His Val Ile Cys Leu Asp Cys Phe His Leu Tyr Cys Val Thr Arg Leu  
 260 265 270

Asn Asp Arg Gln Phe Val His Asp Pro Gln Leu Gly Tyr Ser Leu Pro  
 275 280 285

Cys Val Ala Gly Cys Pro Asn Ser Leu Ile Lys Glu Leu His His Phe  
 290 295 300

Arg Ile Leu Gly Glu Glu Gln Tyr Asn Arg Tyr Gln Gln Tyr Gly Ala  
 305 310 315 320

Glu Glu Cys Val Leu Gln Met Gly Gly Val Leu Cys Pro Arg Pro Gly  
 325 330 335

Cys Gly Ala Gly Leu Leu Pro Glu Pro Asp Gln Arg Lys Val Thr Cys  
 340 345 350

Glu Gly Gly Asn Gly Leu Gly Cys Gly Phe Ala Phe Cys Arg Glu Cys  
 355 360 365

Lys Glu Ala Tyr His Glu Gly Glu Cys Ser Ala Val Phe Glu Ala Ser  
 370 375 380

Gly Thr Thr Thr Gln Ala Tyr Arg Val Asp Glu Arg Ala Ala Glu Gln  
 385 390 395 400

Ala Arg Trp Glu Ala Ala Ser Lys Glu Thr Ile Lys Lys Thr Thr Lys  
 405 410 415

Pro Cys Pro Arg Cys His Val Pro Val Glu Lys Asn Gly Gly Cys Met  
 420 425 430

His Met Lys Cys Pro Gln Pro Gln Cys Arg Leu Glu Trp Cys Trp Asn  
 435 440 445

Cys Gly Cys Glu Trp Asn Arg Val Cys Met Gly Asp His Trp Phe Asp  
 450 455 460



FRAV2002-0020 Sequence Listing.ST25.txt

Val  
465

<210> 10  
<211> 471  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (1)..(471)

```

<400> 10
gga agt cca gca ggt aga tca atc tac aac agc ttt tat gtg tat tgc      48
Gly Ser Pro Ala Gly Arg Ser Ile Tyr Asn Ser Phe Tyr Val Tyr Cys
1                               5                               10          15

aaa ggc ccc tgt caa aga gtg cag ccg gga aaa ctc agg gta cag tgc      96
Lys Gly Pro Cys Gln Arg Val Gln Pro Gly Lys Leu Arg Val Gln Cys
                               20                               25          30

agc acc tgc agg cag gca acg ctc acc ttg acc cag ggt cca tct tgc      144
Ser Thr Cys Arg Gln Ala Thr Leu Thr Leu Thr Gln Gly Pro Ser Cys
                               35                               40          45

tgg gat gat gtt tta att cca aac cgg atg agt ggt gaa tgc caa tcc      192
Trp Asp Asp Val Leu Ile Pro Asn Arg Met Ser Gly Glu Cys Gln Ser
                               50                               55          60

cca cac tgc cct ggg act agt gca gaa ttt ttc ttt aaa tgt gga gca      240
Pro His Cys Pro Gly Thr Ser Ala Glu Phe Phe Phe Lys Cys Gly Ala
65                               70                               75          80

cac ccc acc tct gac aag gaa aca tca gta gct ttg cac ctg atc gca      288
His Pro Thr Ser Asp Lys Glu Thr Ser Val Ala Leu His Leu Ile Ala
                               85                               90          95

aca aat agt cgg aac atc act tgc att acg tgc aca gac gtc agg agc      336
Thr Asn Ser Arg Asn Ile Thr Cys Ile Thr Cys Thr Asp Val Arg Ser
                               100                              105          110

ccc gtc ctg gtt ttc cag tgc aac tcc cgc cac gtg att tgc tta gac      384
Pro Val Leu Val Phe Gln Cys Asn Ser Arg His Val Ile Cys Leu Asp
                               115                              120          125

tgt ttc cac tta tac tgt gtg aca aga ctc aat gat cgg cag ttt gtt      432
Cys Phe His Leu Tyr Cys Val Thr Arg Leu Asn Asp Arg Gln Phe Val
                               130                              135          140

cac gac cct caa ctt ggc tac tcc ctg cct tgt gtg tag      471
His Asp Pro Gln Leu Gly Tyr Ser Leu Pro Cys Val
145                               150                              155

```

<210> 11  
<211> 156  
<212> PRT  
<213> Homo sapiens

<400> 11

FRAV2002-0020 Sequence Listing.ST25.txt

Gly Ser Pro Ala Gly Arg Ser Ile Tyr Asn Ser Phe Tyr Val Tyr Cys  
1 5 10 15

Lys Gly Pro Cys Gln Arg Val Gln Pro Gly Lys Leu Arg Val Gln Cys  
20 25 30

Ser Thr Cys Arg Gln Ala Thr Leu Thr Leu Thr Gln Gly Pro Ser Cys  
35 40 45

Trp Asp Asp Val Leu Ile Pro Asn Arg Met Ser Gly Glu Cys Gln Ser  
50 55 60

Pro His Cys Pro Gly Thr Ser Ala Glu Phe Phe Phe Lys Cys Gly Ala  
65 70 75 80

His Pro Thr Ser Asp Lys Glu Thr Ser Val Ala Leu His Leu Ile Ala  
85 90 95

Thr Asn Ser Arg Asn Ile Thr Cys Ile Thr Cys Thr Asp Val Arg Ser  
100 105 110

Pro Val Leu Val Phe Gln Cys Asn Ser Arg His Val Ile Cys Leu Asp  
115 120 125

Cys Phe His Leu Tyr Cys Val Thr Arg Leu Asn Asp Arg Gln Phe Val  
130 135 140

His Asp Pro Gln Leu Gly Tyr Ser Leu Pro Cys Val  
145 150 155

<210> 12  
<211> 156  
<212> PRT  
<213> Homo sapiens

<400> 12

Gly Ser Pro Ala Gly Arg Ser Ile Tyr Asn Ser Phe Tyr Val Tyr Cys  
1 5 10 15

Lys Gly Pro Cys Gln Arg Val Gln Pro Gly Lys Leu Arg Val Gln Cys  
20 25 30

Ser Thr Cys Arg Gln Ala Thr Leu Thr Leu Thr Gln Gly Pro Ser Cys  
35 40 45

Trp Asp Asp Val Leu Ile Pro Asn Arg Met Ser Gly Glu Cys Gln Ser  
50 55 60

FRAV2002-0020 Sequence Listing.ST25.txt

Pro His Cys Pro Gly Thr Ser Ala Glu Phe Phe Phe Lys Cys Gly Ala  
65 70 75 80

His Pro Thr Ser Asp Lys Glu Thr Ser Val Ala Leu His Leu Ile Ala  
85 90 95

Thr Asn Ser Arg Asn Ile Thr Cys Ile Thr Cys Thr Asp Val Arg Ser  
100 105 110

Pro Val Leu Val Phe Gln Cys Asn Ser Arg His Val Ile Cys Leu Asp  
115 120 125

Cys Phe His Leu Tyr Cys Val Thr Arg Leu Asn Asp Arg Gln Phe Val  
130 135 140

His Asp Pro Gln Leu Gly Tyr Ser Leu Pro Cys Val  
145 150 155

<210> 13  
<211> 1470  
<212> DNA  
<213> Rattus norvegicus

<220>  
<221> CDS  
<222> (1)..(1470)

<400> 13	
atg ata gtg ttt gtc agg ttc aac tcc agc tat ggc ttc cca gtg gag	48
Met Ile Val Phe Val Arg Phe Asn Ser Ser Tyr Gly Phe Pro Val Glu	
1 5 10 15	
gtc gat tct gac acc agc atc ttc cag ctc aag gaa gtg gtt gct aag	96
Val Asp Ser Asp Thr Ser Ile Phe Gln Leu Lys Glu Val Val Ala Lys	
20 25 30	
cga cag ggg gtt cca gct gac cag ctg cga gtg att ttt gct ggg aag	144
Arg Gln Gly Val Pro Ala Asp Gln Leu Arg Val Ile Phe Ala Gly Lys	
35 40 45	
gag ctg cag aat cac ctg aca gta cag cat ccc cag gat ggt ttc tgt	192
Glu Leu Gln Asn His Leu Thr Val Gln His Pro Gln Asp Gly Phe Cys	
50 55 60	
cat aag tct cac ctt gct gtt cat aat ctc tct cag cag gac gtc aca	240
His Lys Ser His Leu Ala Val His Asn Leu Ser Gln Gln Asp Val Thr	
65 70 75 80	
cag aac tgt gac ctg gaa caa cag agt atc gtt cac ata gta cag aga	288
Gln Asn Cys Asp Leu Glu Gln Gln Ser Ile Val His Ile Val Gln Arg	
85 90 95	
cca cag agg aaa agt cac gaa aca aat gcc tct gga ggg gac aaa ccc	336
Pro Gln Arg Lys Ser His Glu Thr Asn Ala Ser Gly Gly Asp Lys Pro	
100 105 110	

FRAV2002-0020 Sequence Listing.ST25.txt

cag agc acc ccg gag ggc tcc ata tgg gag ccc aga agc ttg act cga Gln Ser Thr Pro Glu Gly Ser Ile Trp Glu Pro Arg Ser Leu Thr Arg 115 120 125	384
gtg gac ctc agc agc cat atc ctg cca gcg gac tcc gtg ggg ctg gca Val Asp Leu Ser Ser His Ile Leu Pro Ala Asp Ser Val Gly Leu Ala 130 135 140	432
gtc att ctg gac aca gac agc aag agt gac tca gaa gca gcc aga ggt Val Ile Leu Asp Thr Asp Ser Lys Ser Asp Ser Glu Ala Ala Arg Gly 145 150 155 160	480
cca gaa gct aaa ccc acc tac cac agc ttt ttt gtc tac tgc aaa ggc Pro Glu Ala Lys Pro Thr Tyr His Ser Phe Phe Val Tyr Cys Lys Gly 165 170 175	528
ccc tgc cac aag gtc cag cct ggg aaa ctc cga gtt cag tgc ggc acc Pro Cys His Lys Val Gln Pro Gly Lys Leu Arg Val Gln Cys Gly Thr 180 185 190	576
tgc aga caa gca acc ctc acc ttg gcc cag ggc cca tct tgc tgg gat Cys Arg Gln Ala Thr Leu Thr Leu Ala Gln Gly Pro Ser Cys Trp Asp 195 200 205	624
gat gtc tta att cca aac cgg atg agt gga gag tgt caa tct cca gac Asp Val Leu Ile Pro Asn Arg Met Ser Gly Glu Cys Gln Ser Pro Asp 210 215 220	672
tgc cct ggg aca aga gct gaa ttt ttc ttt aaa tgt gga gca cac cca Cys Pro Gly Thr Arg Ala Glu Phe Phe Phe Lys Cys Gly Ala His Pro 225 230 235 240	720
acc tca gac aag gac aca tca gta gct ttg aac ctg atc acc aac aac Thr Ser Asp Lys Asp Thr Ser Val Ala Leu Asn Leu Ile Thr Asn Asn 245 250 255	768
agc cgc agc atc ccc tgc atc gcg tgc acg gat gtc agg aac cct gtc Ser Arg Ser Ile Pro Cys Ile Ala Cys Thr Asp Val Arg Asn Pro Val 260 265 270	816
ttg gtc ttc caa tgt aac cac cgc cac gtg atc tgt ttg gac tgc ttc Leu Val Phe Gln Cys Asn His Arg His Val Ile Cys Leu Asp Cys Phe 275 280 285	864
cac ttg tac tgt gtc aca agg ctc aac gat cgg cag ttt gtc cac gac His Leu Tyr Cys Val Thr Arg Leu Asn Asp Arg Gln Phe Val His Asp 290 295 300	912
gct cag ctt ggc tac tcg ctg ccg tgt gtg gct ggc tgt ccc aac tcc Ala Gln Leu Gly Tyr Ser Leu Pro Cys Val Ala Gly Cys Pro Asn Ser 305 310 315 320	960
ctg att aaa gag ctc cat cac ttc agg atc ctt gga gaa gag cag tac Leu Ile Lys Glu Leu His His Phe Arg Ile Leu Gly Glu Glu Gln Tyr 325 330 335	1008
aac agg tac cag cag tat ggt gcc gag gag tgc gtg ctg cag atg gga Asn Arg Tyr Gln Gln Tyr Gly Ala Glu Glu Cys Val Leu Gln Met Gly 340 345 350	1056
ggt gtg ctg tgc ccc cgt cct ggc tgc gga gct ggg ctg ctg cct gaa Gly Val Leu Cys Pro Arg Pro Gly Cys Gly Ala Gly Leu Leu Pro Glu 355 360 365	1104

FRAV2002-0020 Sequence Listing.ST25.txt

cag ggc cag aag aaa gtc acc tgt gaa ggg ggc aac ggc ctg ggc tgt	1152
Gln Gly Gln Lys Lys Val Thr Cys Glu Gly Gly Asn Gly Leu Gly Cys	
370 375 380	
ggg ttc gtt ttc tgc cgg gac tgc aag gaa gca tac cat gaa ggg gag	1200
Gly Phe Val Phe Cys Arg Asp Cys Lys Glu Ala Tyr His Glu Gly Glu	
385 390 395 400	
tgc gac tcg atg ttc gaa gcc tcg ggg gcg act tct cag gca tac cgg	1248
Cys Asp Ser Met Phe Glu Ala Ser Gly Ala Thr Ser Gln Ala Tyr Arg	
405 410 415	
gtg gat caa aga gct gct gag caa gca cgg tgg gag gag gcc tcc aag	1296
Val Asp Gln Arg Ala Ala Glu Gln Ala Arg Trp Glu Glu Ala Ser Lys	
420 425 430	
gaa acc atc aag aaa acc acc aag cct tgt cct cgc tgc aat gtg ccc	1344
Glu Thr Ile Lys Lys Thr Thr Lys Pro Cys Pro Arg Cys Asn Val Pro	
435 440 445	
att gaa aag aat gga gga tgt atg cac atg aag tgt cct cag ccc cag	1392
Ile Glu Lys Asn Gly Gly Cys Met His Met Lys Cys Pro Gln Pro Gln	
450 455 460	
tgc aag ctg gag tgg tgt tgg aac tgc ggc tgt gag tgg aac cga gcc	1440
Cys Lys Leu Glu Trp Cys Trp Asn Cys Gly Cys Glu Trp Asn Arg Ala	
465 470 475 480	
tgc atg ggt gat cac tgg ttt gac gtg tag	1470
Cys Met Gly Asp His Trp Phe Asp Val	
485	

<210> 14  
 <211> 489  
 <212> PRT  
 <213> Rattus norvegicus

<400> 14

Met Ile Val Phe Val Arg Phe Asn Ser Ser Tyr Gly Phe Pro Val Glu
1 5 10 15
Val Asp Ser Asp Thr Ser Ile Phe Gln Leu Lys Glu Val Val Ala Lys
20 25 30
Arg Gln Gly Val Pro Ala Asp Gln Leu Arg Val Ile Phe Ala Gly Lys
35 40 45
Glu Leu Gln Asn His Leu Thr Val Gln His Pro Gln Asp Gly Phe Cys
50 55 60
His Lys Ser His Leu Ala Val His Asn Leu Ser Gln Gln Asp Val Thr
65 70 75 80
Gln Asn Cys Asp Leu Glu Gln Gln Ser Ile Val His Ile Val Gln Arg
85 90 95

FRAV2002-0020 Sequence Listing.ST25.txt

Pro Gln Arg Lys Ser His Glu Thr Asn Ala Ser Gly Gly Asp Lys Pro  
100 105 110

Gln Ser Thr Pro Glu Gly Ser Ile Trp Glu Pro Arg Ser Leu Thr Arg  
115 120 125

Val Asp Leu Ser Ser His Ile Leu Pro Ala Asp Ser Val Gly Leu Ala  
130 135 140

Val Ile Leu Asp Thr Asp Ser Lys Ser Asp Ser Glu Ala Ala Arg Gly  
145 150 155 160

Pro Glu Ala Lys Pro Thr Tyr His Ser Phe Phe Val Tyr Cys Lys Gly  
165 170 175

Pro Cys His Lys Val Gln Pro Gly Lys Leu Arg Val Gln Cys Gly Thr  
180 185 190

Cys Arg Gln Ala Thr Leu Thr Leu Ala Gln Gly Pro Ser Cys Trp Asp  
195 200 205

Asp Val Leu Ile Pro Asn Arg Met Ser Gly Glu Cys Gln Ser Pro Asp  
210 215 220

Cys Pro Gly Thr Arg Ala Glu Phe Phe Phe Lys Cys Gly Ala His Pro  
225 230 235 240

Thr Ser Asp Lys Asp Thr Ser Val Ala Leu Asn Leu Ile Thr Asn Asn  
245 250 255

Ser Arg Ser Ile Pro Cys Ile Ala Cys Thr Asp Val Arg Asn Pro Val  
260 265 270

Leu Val Phe Gln Cys Asn His Arg His Val Ile Cys Leu Asp Cys Phe  
275 280 285

His Leu Tyr Cys Val Thr Arg Leu Asn Asp Arg Gln Phe Val His Asp  
290 295 300

Ala Gln Leu Gly Tyr Ser Leu Pro Cys Val Ala Gly Cys Pro Asn Ser  
305 310 315 320

Leu Ile Lys Glu Leu His His Phe Arg Ile Leu Gly Glu Glu Gln Tyr  
325 330 335

Asn Arg Tyr Gln Gln Tyr Gly Ala Glu Glu Cys Val Leu Gln Met Gly

340

345

350

Gly Val Leu Cys Pro Arg Pro Gly Cys Gly Ala Gly Leu Leu Pro Glu  
 355 360 365

Gln Gly Gln Lys Lys Val Thr Cys Glu Gly Gly Asn Gly Leu Gly Cys  
 370 375 380

Gly Phe Val Phe Cys Arg Asp Cys Lys Glu Ala Tyr His Glu Gly Glu  
 385 390 395 400

Cys Asp Ser Met Phe Glu Ala Ser Gly Ala Thr Ser Gln Ala Tyr Arg  
 405 410 415

Val Asp Gln Arg Ala Ala Glu Gln Ala Arg Trp Glu Glu Ala Ser Lys  
 420 425 430

Glu Thr Ile Lys Lys Thr Thr Lys Pro Cys Pro Arg Cys Asn Val Pro  
 435 440 445

Ile Glu Lys Asn Gly Gly Cys Met His Met Lys Cys Pro Gln Pro Gln  
 450 455 460

Cys Lys Leu Glu Trp Cys Trp Asn Cys Gly Cys Glu Trp Asn Arg Ala  
 465 470 475 480

Cys Met Gly Asp His Trp Phe Asp Val  
 485

<210> 15  
 <211> 489  
 <212> PRT  
 <213> Rattus norvegicus

<400> 15

Met Ile Val Phe Val Arg Phe Asn Ser Ser Tyr Gly Phe Pro Val Glu  
 1 5 10 15

Val Asp Ser Asp Thr Ser Ile Phe Gln Leu Lys Glu Val Val Ala Lys  
 20 25 30

Arg Gln Gly Val Pro Ala Asp Gln Leu Arg Val Ile Phe Ala Gly Lys  
 35 40 45

Glu Leu Gln Asn His Leu Thr Val Gln His Pro Gln Asp Gly Phe Cys  
 50 55 60

His Lys Ser His Leu Ala Val His Asn Leu Ser Gln Gln Asp Val Thr  
 Page 23

```

65          70          75          80
Gln Asn Cys Asp Leu Glu Gln Gln Ser Ile Val His Ile Val Gln Arg
      85          90          95
Pro Gln Arg Lys Ser His Glu Thr Asn Ala Ser Gly Gly Asp Lys Pro
      100         105         110
Gln Ser Thr Pro Glu Gly Ser Ile Trp Glu Pro Arg Ser Leu Thr Arg
      115         120         125
Val Asp Leu Ser Ser His Ile Leu Pro Ala Asp Ser Val Gly Leu Ala
      130         135         140
Val Ile Leu Asp Thr Asp Ser Lys Ser Asp Ser Glu Ala Ala Arg Gly
      145         150         155         160
Pro Glu Ala Lys Pro Thr Tyr His Ser Phe Phe Val Tyr Cys Lys Gly
      165         170         175
Pro Cys His Lys Val Gln Pro Gly Lys Leu Arg Val Gln Cys Gly Thr
      180         185         190
Cys Arg Gln Ala Thr Leu Thr Leu Ala Gln Gly Pro Ser Cys Trp Asp
      195         200         205
Asp Val Leu Ile Pro Asn Arg Met Ser Gly Glu Cys Gln Ser Pro Asp
      210         215         220
Cys Pro Gly Thr Arg Ala Glu Phe Phe Phe Lys Cys Gly Ala His Pro
      225         230         235         240
Thr Ser Asp Lys Asp Thr Ser Val Ala Leu Asn Leu Ile Thr Asn Asn
      245         250         255
Ser Arg Ser Ile Pro Cys Ile Ala Cys Thr Asp Val Arg Asn Pro Val
      260         265         270
Leu Val Phe Gln Cys Asn His Arg His Val Ile Cys Leu Asp Cys Phe
      275         280         285
His Leu Tyr Cys Val Thr Arg Leu Asn Asp Arg Gln Phe Val His Asp
      290         295         300
Ala Gln Leu Gly Tyr Ser Leu Pro Cys Val Ala Gly Cys Pro Asn Ser
      305         310         315         320

```



FRAV2002-0020 Sequence Listing.ST25.txt

Leu Ile Lys Glu Leu His His Phe Arg Ile Leu Gly Glu Glu Gln Tyr  
325 330 335

Asn Arg Tyr Gln Gln Tyr Gly Ala Glu Glu Cys Val Leu Gln Met Gly  
340 345 350

Gly Val Leu Cys Pro Arg Pro Gly Cys Gly Ala Gly Leu Leu Pro Glu  
355 360 365

Gln Gly Gln Lys Lys Val Thr Cys Glu Gly Gly Asn Gly Leu Gly Cys  
370 375 380

Gly Phe Val Phe Cys Arg Asp Cys Lys Glu Ala Tyr His Glu Gly Glu  
385 390 395 400

Cys Asp Ser Met Phe Glu Ala Ser Gly Ala Thr Ser Gln Ala Tyr Arg  
405 410 415

Val Asp Gln Arg Ala Ala Glu Gln Ala Arg Trp Glu Glu Ala Ser Lys  
420 425 430

Glu Thr Ile Lys Lys Thr Thr Lys Pro Cys Pro Arg Cys Asn Val Pro  
435 440 445

Ile Glu Lys Asn Gly Gly Cys Met His Met Lys Cys Pro Gln Pro Gln  
450 455 460

Cys Lys Leu Glu Trp Cys Trp Asn Cys Gly Cys Glu Trp Asn Arg Ala  
465 470 475 480

Cys Met Gly Asp His Trp Phe Asp Val  
485

<210> 16  
<211> 27  
<212> DNA  
<213> Homo sapiens

<400> 16  
ttaagaattc ggaagtccag caggtag

27

<210> 17  
<211> 29  
<212> DNA  
<213> Homo sapiens

<400> 17  
attagatcc ctacacacaa ggcagggag

29

<210> 18

FRAV2002-0020 Sequence Listing.ST25.txt

<211> 19	
<212> DNA	
<213> Homo sapiens	
<400> 18	
gcgtttgga tcactacag	19
<210> 19	
<211> 16	
<212> DNA	
<213> Homo sapiens	
<400> 19	
atgccgatgt accagg	16
<210> 20	
<211> 19	
<212> DNA	
<213> Homo sapiens	
<400> 20	
gggattcact ttaatttg	19
<210> 21	
<211> 18	
<212> DNA	
<213> Homo sapiens	
<400> 21	
aatgttcct tcgccttc	18
<210> 22	
<211> 17	
<212> DNA	
<213> Homo sapiens	
<400> 22	
ttaaaaagga gccaggt	17